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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/309,868	09/21/1994	HIDENARI YASUI	28	6704

7590 05/24/2002

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EXAMINER
SHERRER, CURTIS EDWARD

ART UNIT	PAPER NUMBER
1761	24

DATE MAILED: 05/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
08/309,868	Yasui et al.
Examiner	**Art Unit**
Curtis E. Sherrer	1761

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jul. 16, 2001* .

2a) ☐ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *2-5 and 7-12* is/are pending in the application.

4a) Of the above, claim(s) *7-10* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *2-5, 11, and 12* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
18) ☐ Interview Summary (PTO-413) Paper No(s). _____
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other:

Part III DETAILED ACTION

The time for response is restarted as indicated on the Form PTO-326.

Election/Restriction

1. This application contains claims 7-10 drawn to an invention non-elected with traverse in Paper No. 5. A complete response to the final rejection must include cancellation of non-elected claims or other appropriate action (37 C.F.R. § 1.144) M.P.E.P. § 821.01.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. § 119, which papers have been placed of record in the file.

Decision by the Board of Appeals

3. In Paper #23, Decision on Appeal, the Board of Appeal stated that "the [claim] phrase 'aerated aqueous suspension withdrawn from the aeration tank' is not expressly defined in the present specification, it is clear from the ordinary meaning of this recitation and the enlightenment found in the accompanying written description that the term 'aerated aqueous suspension' refers to the material which is removed from the aeration tank prior to its introduction into the solid/liquid separation unit." (Emphasis theirs). (The claimed invention therefore excludes the process of Fig. 5, whereby the aerated aqueous suspension is first

treated by ozone). Because the examiner did not find the claim to be limited in the above fashion, the prior rejection was determined to be improper.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 11, 2, and 5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Smith et al. (U.S. Pat. No. 3,591,491) in view of Hei et al. (U.S. Pat. No. 5,484,549) or Berndt (U.S. Pat. No. 5,520,888) or Kramer et al. (U.S. Pat. No. 5,215,554).

6. Smith et al. teach the purification of "sewage, industrial waste or garbage in an aerobic process having a primary and a secondary clarifier and a return for selected portions of the activated sludge." (Col. 3, lines 30-33). Figure 1 shows the sewage entering an aerobic processing tank and then to a clarifier. The activated sludge then is sent to a "microbial biolysis unit" (49). The patent teaches that "means for effecting biolysis such as . . ., ozonation, . . . may be employed." (Col. 6, lines 55-61). The optimization of feeding the oxygenated organisms is referred to in col. 6, lines 30-34. See also col. 7, lines 11-25.

7. While Smith et al. teach the notoriously well known use of ozonation there no mention as to what the pH value might be during ozonation.

8. Hei et al. and Berndt and Kramer (all previously cited) all teach the effects of pH on the solubility of ozone in an aqueous solution.

9. Hei et al. teach, at col. 3, lines 38-53, the "low solubility and instability of ozone . . . is substantially enhanced as the pH increases past 6."

10. Berndt teaches, at col. 4, lines 48-60, the well known effect of pH on the solubility of ozone.

11. Kramer et al. teach, at col. 41, lines 14-30, the well known adverse effects of high pH's on ozone stability.

12. It would have been obvious to one of ordinary skill in the art to add chemicals, such as those taught by Hei et al. and Berndt and Kramer et al. to obtain a pH of below 5 in the Smith et al. process because Hei et al., Berndt and Kramer et al. all teach that high pH's adversely affect the stability and solubility of ozone. Therefore, there is ample motivation to perform the claimed process at the claimed pH range.

13. Further, in addition to the motivation set forth above, it is considered that applicants have merely employed well known waste processing technology in conjunction with routine optimization of a result effective variable, i.e., pH and temperature, that produced the expected results. Specifically, it is considered that Applicants have optimized the pH and temperature to obtain the desired final solids level.

14. Claim 12 is rejected under 35 U.S.C. § 103 as being unpatentable over Smith et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Dorau et al. (U.S. Pat. No. 5,362,395).

15. The cited art teaches that noted above but do not teach the use of a membrane filter to separate a solid phase from the liquid phase as claimed. While it is considered that it is notoriously well known to separate solids from liquids by means of a membrane separation unit Dorau et al. teaches this use. Dorau et al. was previously relied on and therefore citation to the pertinent portions will not be repeated. It would have been obvious to those of ordinary skill in the art to separate the sludge from a solid/liquid suspension because it is notoriously well known as effective for this purpose.

16. Claim 3 is rejected under 35 U.S.C. § 103 as being unpatentable over Smith et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Brock (Biology of Microorganisms pp. 214 and 215).

17. Smith et al. in view of Hei et al. or Berndt or Kramer et al. teach that which is cited above but do not disclose lowering the pH by acidogenesis.

18. Brock broadly discloses the well known effect of microorganisms on the pH. One example of man's use of this pH-lowering-effect by anaerobic fermentation is in the

production of pickles (page 215) "by allowing acidity to develop directly in the food through microbial action."

19. It would have been obvious to one of ordinary skill in the art Smith et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Brock since it well known to utilize organisms to lower a solution's pH and thereby optimize the use of ozone.

20. Claim 4 is rejected under 35 U.S.C. § 103 as being unpatentable over Smith et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Brock (Biology of Microorganisms pp. 202 to 204).

21. Smith et al. in view of Hei et al. or Berndt or Kramer et al. teach that which is cited above but do not disclose the heating of the system fluids.

22. Brock broadly discloses the well known effect of temperatures on thermophilic microorganisms. Specifically, thermophiles grow at temperatures of 50°C and higher. An example of a thermophile environment is that of a compost pile whose temperatures "usually reach 60 to 65°C" (page 204, top).

23. It would have been obvious to one of ordinary skill in the art Smith et al. in view of Hei et al. or Berndt or Kramer et al. and in further view of Brock since it well known that decomposing organisms operate at higher temperatures.

Conclusion

24. No claim is allowed.

25. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Curtis Sherrer whose telephone number is (703) 308-3847. The examiner can normally be reached on Monday through Friday from 8:30 to 6:30. The fax phone number for this Group is (703)-305-3602.

26. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0651.

Curtis E. Sherrer
Primary Examiner
May 14, 2002

JACQUELINE M. STONE
DIRECTOR
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